CLAIMS

What is claimed is:

1   1. A method communicating a packet comprising communicating:

2   a channelization field identifying channels that are used for

3 communicating subsequent wideband fields of the packet; and

4   a wideband-header field on the identified channels to identify sub-fields

5 present in the wideband-header field and the presence of a wideband-data field

6 following the wideband-header field.

1   2. The method of claim 1 wherein the communicating comprises:

2   communicating the channelization field on a single compatibility channel

3 of an allocated portion of spectrum comprising a plurality of channels; and

4   communicating the wideband-header field on the identified channels

5 including the compatibility channel.

1   3. The method of claim 1 wherein the communicating comprises

2 communicating a wideband-training field as part of the packet following the

3 channelization field, the wideband-training field comprising a training sequence

4 on the channels identified by the channelization field.

1   4. The method of claim 3 wherein when the wideband-header field

2 includes an indication of a presence of the wideband-data field, the

3 communicating further comprises communicating the wideband-data field as part

4 of the packet on the channels identified by the channelization field.

1   5. The method of claim 3 further comprising estimating at least one of a

2 timing offset, fine-frequency offset, and channel response using at least the

3 training sequence for processing subsequent wideband fields of the packet

4 including the wideband-header field and the wideband-data field when included

5 within the packet.

1   6. The method of claim 2 wherein the communicating comprises one of

2   either sending the packet by a transmitting communication unit or receiving the

3   packet by a receiving communication unit, and

4   wherein the identified channels, including the compatibility channel,

5   comprise symbol-modulated subcarriers.

1   7. The method of claim 1 wherein the wideband-header field is encoded

2   with a predetermined encoding scheme and modulated with a predetermined

3   modulation scheme, wherein the predetermined modulation scheme comprises one

4   of either BPSK or QPSK modulation, and wherein the predetermined encoding

5   scheme comprises a ½ rate convolution code.

1   8. The method of claim 2 wherein the communicating further comprises

2   communicating a short-compatibility field as part of the packet on the

3   compatibility channel, wherein the short-compatibility field includes length

4   information defining a length of the packet, wherein communications units refrain

5   from transmitting on the identified channels during transmission of the packet.

1   9. The method of claim 2 wherein communicating further comprising

2   communicating a long-compatibility field on the compatibility channel, the long-

3   compatibility field comprising a variable number of symbols over a plurality of

4   symbol-modulated subcarriers that comprise at least one of the channels,

5   wherein the long-compatibility field includes information to reserve at

6   least one of the channels for a time period, wherein a narrower-band

7   communication unit refrains from communicating during the time period in

8   response to receipt of the long-compatibility field.

1   10. The method of claim 9 wherein the long-compatibility field and the

2   channelization field of the packet are sent on the compatibility channel, and

3   wherein a wideband-training field, the wideband-header field and, when

4   included, a wideband-data field are sent on the identified channels including the

5   compatibility channel.

1   11. The method of claim 2 wherein the compatibility channel is relocatable
2   to any one of a plurality of narrow-band channels within the allocated portion of
3   spectrum, and
4   wherein the method further comprises scanning channels for the operation
5   of narrower-band communication units, and
6   selecting one of the channels as the compatibility channel based on an
7   overlapping use by at least some of the narrower-band communication units.

1   12. The method of claim 1 wherein the wideband-header field comprises:
2   a field to request bit-loading per subcarrier for subsequent transmission by
3   a transmitting communication unit of a wideband-data field of a packet, the bit-
4   loading per subcarrier indicating a modulation scheme for transmission of the
5   individual symbol-modulated subcarriers of the identified channels;
6   a field to request a coding rate for the subsequent transmission of the
7   wideband-data field; and
8   a field to request a power loading per subcarrier for the subsequent
9   transmission of the wideband-data field.

1   13. The method of claim 12 wherein the wideband-header field comprises
2   at least one of:
3   a field to indicate the presence of the wideband-data field;
4   a field to indicate a bit loading per subcarrier for the wideband-data field,
5   the bit loading per subcarrier indicating a modulation scheme used for
6   transmission of the individual symbol-modulated subcarriers of the identified
7   channels;
8   a field to indicate a power loading per subcarrier for the wideband-data
9   field, the power loading per subcarrier indicating a transmission power level used
10   for transmission of the individual symbol-modulated subcarriers of the identified
11   channels; and
12   a field to indicate coding rates for decoding the wideband-data field.

1   14. The method of claim 13 wherein the wideband-header field comprises
2   a parameter mask to identify fields present in the wideband-header field and the
3   presence of the wideband-data field.

1   15. The method of claim 14 further comprising:
2   receiving selected individual subcarrier modulation assignments in the
3   wideband-header field, the subcarrier modulation assignments being selected
4   based on channel characteristics measured during a receipt of the wideband-
5   channel training field on the identified channels at a receiving communication
6   unit; and
7   individually modulating subcarriers of the identified channels for
8   transmission based on the selected individual subcarrier modulation assignments
9   received in the wideband-header field.

1   16. The method of claim 1 wherein the communicating comprises:
2   communicating the channelization field on a single compatibility channel
3   of an allocated portion of spectrum comprising a plurality of channels;
4   communicating the wideband-header field on the identified channels
5   including the compatibility channel;
6   communicating a wideband-training field as part of the packet following
7   the channelization field, the wideband-training field comprising a training
8   sequence on the channels identified by the channelization field; and
9   communicating a long-compatibility field on the compatibility channel, the
10   long-compatibility field comprising a variable number of symbols over a plurality
11   of symbol-modulated subcarriers that comprise at least one of the channels,
12   wherein the long-compatibility field includes information to reserve at
13   least one of the channels for a time period, wherein a narrower-band
14   communication unit refrains from communicating during the time period in
15   response to receipt of the long-compatibility field,
16   wherein the wideband-header field comprises:
17   a field to request bit-loading per subcarrier for subsequent transmission by
18   a transmitting communication unit of a wideband-data field of a packet, the bit-

19 loading per subcarrier indicating a modulation scheme for transmission of the

20 individual symbol-modulated subcarriers of the identified channels;

21 a field to request a coding rate for the subsequent transmission of the

22 wideband-data field; and

23 a field to request a power loading per subcarrier for the subsequent

24 transmission of the wideband-data field.

1 17. The method of claim 16 wherein when the wideband-header field

2 includes an indication of a presence of the wideband-data field,

3 the communicating further comprises communicating the wideband-data

4 field as part of the packet on the channels identified by the channelization field,

5 wherein the method further comprising estimating at least one of a timing

6 offset, fine-frequency offset, and channel response using at least the training

7 sequence for processing subsequent wideband fields of the packet including the

8 wideband-header field and the wideband-data field when included within the

9 packet,

10 wherein the compatibility channel is relocatable to any one of a plurality of

11 narrow-band channels within the allocated portion of spectrum, and

12 wherein the method further comprises:

13 scanning channels for the operation of narrower-band communication

14 units;

15 selecting one of the channels as the compatibility channel based on an

16 overlapping use by at least some of the narrower-band communication units;

17 receiving selected individual subcarrier modulation assignments in the

18 wideband-header field, the subcarrier modulation assignments being selected

19 based on channel characteristics measured during a receipt of the wideband-

20 channel training field on the identified channels at a receiving communication

21 unit; and

22 individually modulating subcarriers of the identified channels for

23 transmission based on the selected individual subcarrier modulation assignments

24 received in the wideband-header field.

1   18. The method of claim 17 wherein the communicating comprises one of

2   either sending the packet by a transmitting communication unit or receiving the

3   packet by a receiving communication unit,

4   wherein the identified channels, including the compatibility channel, are

5   comprised symbol-modulated subcarriers, and

6   wherein the wideband-header field is encoded with a predetermined

7   encoding scheme and modulated with a predetermined modulation scheme,

8   wherein the predetermined modulation scheme comprises one of either BPSK or

9   QPSK modulation, and wherein the predetermined encoding scheme comprises a

10 ½ rate convolution code.

1   19. A communication unit comprising:

2   a physical layer to communicate a packet comprising at least a

3   channelization field to identify channels that are used for communicating

4   subsequent wideband fields of the packet, and to communicate a wideband-header

5   field on the identified channels, the wideband-header field to identify sub-fields

6   present in the wideband-header field and the presence of a wideband-data field

7   following the wideband-header field; and

8   a medium access control layer to select channels for communication by the

9   physical layer and obtain access to the selected channels.

1   20. The communication unit of claim 19 wherein the physical layer is to

2   communicate the channelization field on a compatibility channel of an allocated

3   portion of spectrum comprising a plurality of channels, and is to communicate the

4   wideband-header field on the identified channels including the compatibility

5   channel.

1   21. The communication unit of claim 19 wherein the physical layer is to

2   further communicate a wideband-training field as part of the packet following the

3   channelization field, the wideband-training field comprising a training sequence

4   on the channels identified by the channelization field.

1   22. The communication unit of claim 21 wherein when the wideband-
2   header field includes an indication of a presence of the wideband-data field, the
3   physical layer is to further communicate the wideband-data field as part of the
4   packet on the channels identified by the channelization field.

1   23. A system comprising:
2   an omnidirectional antenna;
3   a physical layer to communicate a packet with the omnidirectional
4   antenna, the packet comprising at least a channelization field to identify channels
5   that are used for communicating subsequent wideband fields of the packet, and to
6   communicate a wideband-header field on the identified channels, the wideband-
7   header field to identify sub-fields present in the wideband-header field and the
8   presence of a wideband-data field following the wideband-header field; and
9   a medium access control layer to select channels for communication by the
10   physical layer and obtain access to the selected channels.

1   24. The system of claim 23 wherein the physical layer is to communicate
2   the channelization field on a compatibility channel of an allocated portion of
3   spectrum comprising a plurality of channels, and is to communicate the wideband-
4   header field on the identified channels including the compatibility channel.

1   25. The system of claim 23 wherein the physical layer is to further
2   communicate a wideband-training field as part of the packet following the
3   channelization field, the wideband-training field comprising a training sequence
4   on the channels identified by the channelization field,
5   wherein when the wideband-header field includes an indication of a
6   presence of the wideband-data field, the physical layer is to further communicate
7   the wideband-data field as part of the packet on the channels identified by the
8   channelization field.

1   26. A machine-readable medium that provides instructions, which when
2   executed by one or more processors, cause said processors to perform operations
3   comprising communicating a packet comprising a channelization field identifying

4   channels that are used for communicating subsequent wideband fields of the

5   packet, and further comprising a wideband-header field on the identified channels

6   to identify sub-fields present in the wideband-header field and the presence of a

7   wideband-data field following the wideband-header field.

1   27. The machine-readable medium of claim 26 wherein the instructions,

2   when further executed by one or more of said processors cause said processors to

3   perform operations further comprising:

4   communicating the channelization field on a single compatibility channel

5   of an allocated portion of spectrum comprising a plurality of channels; and

6   communicating the wideband-header field on the identified channels

7   including the compatibility channel.

1   28. The machine-readable medium of claim 26 wherein the instructions,

2   when further executed by one or more of said processors cause said processors to

3   perform operations further comprising communicating a wideband-training field

4   as part of the packet following the channelization field, the wideband-training

5   field comprising a training sequence on the channels identified by the

6   channelization field.

1   29. The machine-readable medium of claim 28 wherein the instructions,

2   when further executed by one or more of said processors cause said processors to

3   perform operations wherein when the wideband-header field includes an

4   indication of the presence of the wideband-data field, the communicating further

5   comprises communicating the wideband-data field as part of the packet on the

6   channels identified by the channelization field.

1   30. A communication packet comprising:

2   a channelization field identifying channels that are used for

3   communicating subsequent wideband fields of the packet; and

4   a wideband-header field for communication on the identified channels to

5   identify sub-fields present in the wideband-header field and the presence of a

6   wideband-data field following the wideband-header field,

7   wherein the channels comprise a plurality of substantially orthogonal

8   symbol-modulated subcarriers.

1   31. The packet of claim 30 wherein the channelization field is for

2   communication on a single compatibility channel assigned an allocated portion of

3   spectrum comprising the plurality of channels, and

4   wherein the wideband-header field is for communication on the identified

5   channels including the compatibility channel.

1   32. The packet of claim 30 further comprising:

2   a wideband-training field to follow the channelization field, the wideband-

3   training field comprising a training sequence for communication on the channels

4   identified by the channelization field,

5   wherein when the wideband-header field includes an indication of the

6   presence of the wideband-data field, the packet includes the wideband-data field

7   for communication on the channels identified by the channelization field.

1   33. The packet of claim 30 further comprising a long-compatibility field

2   for communication on the compatibility channel, the long-compatibility field

3   comprising a variable number of symbols transmitted over a plurality of symbol-

4   modulated subcarriers that comprise the compatibility channel,

5   wherein the long-compatibility field includes information to reserve at

6   least one of the channels for a time period, wherein a narrower-band

7   communication unit refrains from communicating during the time period in

8   response to receipt of the long-compatibility field.

1   34. A method comprising:

2   communicating a wideband-training field as part of a packet, the

3   wideband-training field comprising a training sequence modulated on a plurality

4   of symbol-modulated subcarriers on a plurality of channels;

5   communicating a wideband-header field on the channels, the wideband-

6   header field to identify sub-fields present in the wideband-header field and to

7   identify a presence of a wideband-data field; and

8   communicating the wideband-data field as part of the packet on the

9   channels when indicated in the wideband-header field.

1   35. The method of claim 34 further comprising communicating a short-

2   compatibility field as part of the packet on the plurality of channels, wherein the

3   short-compatibility field includes packet-length information defining a length of

4   the packet, wherein narrower-band communication units refrain from

5   communicating on the plurality of channels during the packet in response to the

6   packet-length information.

1   36. The method of claim 34 further comprising estimating at least one of a

2   timing offset, fine-frequency offset, and channel response using at least the

3   training sequence for processing subsequent wideband fields of the packet

4   including the wideband-header field and the wideband-data field when included

5   within the packet.

1   37. The method of claim 34 wherein the wideband-header field is encoded

2   with a predetermined encoding scheme and modulated with a predetermined

3   modulation scheme, wherein the predetermined modulation scheme comprises one

4   of either BPSK or QPSK modulation, and wherein the predetermined encoding

5   scheme comprises a ½ rate convolution code.